



# Aquilegia: Newsletter of the Colorado Native Plant Society

Dedicated to furthering the knowledge, appreciation, and conservation of native plants and habitats of Colorado through education, stewardship, and advocacy

## Inside this Issue

From the Editorial Team .....	4
<b>Feature Stories: 2017 Annual CoNPS Conference</b>	
Rare Plant Symposium Summary.....	3
Revisiting the Annual Conference .....	5
Field Trip Reports .....	10
Photo Contest Winners.....	23
<b>Columns</b>	
Conservation Corner: "The Native Plant Conservation Campaign" .....	11
Film Review: <i>Doing More With Less: The Challenge and Opportunity of Water Efficiency</i> .....	13
<b>Research and Reports</b>	
The Awkward Relationship between <i>Homo sapiens</i> and Planet Earth .....	15
A Day in the Life of a Native Seed Collector.....	18
Boulder Area Garden Tour Delighted Attendees .....	19
<b>News and Announcements</b>	
East Slope Coordinator Named .....	18
Event Calendar .....	20
New Member Profile .....	21
Obituaries .....	21

## *Botanicum absurdum* by Rob Pudim



**Front Cover: First Place Photo Contest Winners** (clockwise from upper left: Carol McGowan (Colorado Native Plants); Jim Den Uyl (Artistic); Don Hazlett (Wildlife); William Bowman (Landscapes). See page 23 for details.

### 2017 Colorado Rare Plant Symposium Drew Big Crowd

by Jill Handwerk

Botanists and members of the Colorado Rare Plant Technical Committee (RPTC) were among the group of nearly 60 people gathered at Colorado College in Colorado Springs, CO to attend the 14th Annual Colorado Rare Plant Symposium on September 8. The symposium is held each fall in conjunction with the Colorado Native Plant Society's (CoNPS) annual conference, and is hosted by the Colorado Natural Heritage Program (CNHP) and Denver Botanic Gardens (DBG).

Attendees included professional and amateur botanists with a common interest in Colorado rare plants and their conservation.

This year Jill Handwerk (CNHP) presented data and photos of rare plant species known from southeast Colorado, along with the critically imperiled (G1) and federally listed plants species of Colorado. New this year was an afternoon review of the U.S. Forest Service (USFS) and Bureau of Land Management (BLM) sensitive species, led by Steve Olson and Carol Dawson, respectively.

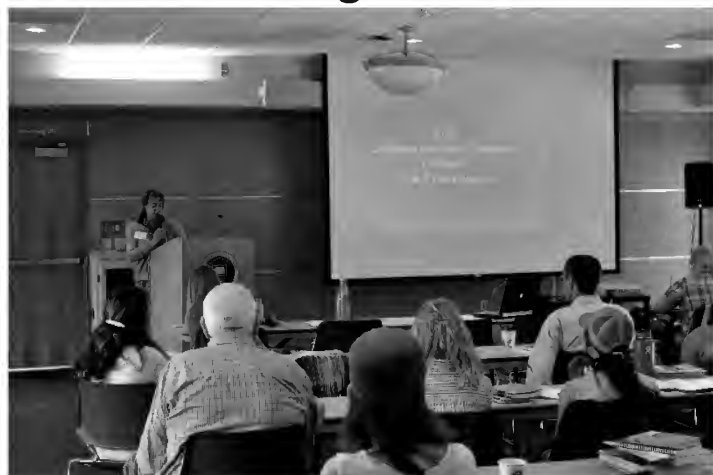
Additionally, Tim Hogan (CU Herbarium) provided herbarium specimens of the southeast Colorado rare species. The presenters encouraged participants to share their observations about the highlighted species and learn the latest information on Colorado's rare plant conservation efforts.

Here are some highlights from the 2017 Symposium:

**New populations of rare plants reported** in 2017 included populations of West Silver Bladderpod (*Physaria scrotiformis*) and Gibbens' Beardtongue (*Penstemon gibbensii*).

**Genetic studies continue** to answer taxonomic and management questions for some of our state's rarest species, including: Boatshaped Bugseed (*Corispermum navicula*), Mancos Shale Packera (*Packera mancosana*), Kremmling Beardtongue (*Penstemon penlandii*), North Park Phacelia (*Phacelia formosula*), in addition to *Sclerocactus* species of western Colorado and eastern Utah.

**Habitat was protected** by the Colorado Natural Areas Program for Pagosa Skyrocket (*Ipomopsis polyantha*) with the purchase of 88 acres of occupied habitat. Pagosa Skyrocket is endemic to the Pagosa Springs area and is federally listed as threatened.



Steve Olson (USFS) provided an update on upcoming changes in how the USFS regional sensitive species lists are developed. The USFS is moving towards Species of Conservation Concern, which must focus on ecological conditions, and will be based on NatureServe G and S ranks. Existing Sensitive Species will remain in effect until new management plans are developed for each forest.

**Additional afternoon presentations included:** Raquel Wertsbaugh, Colorado Natural Areas Program (CNAP), who discussed the recent incorporation of rare plants into the State Wildlife Action Plan and the implications for land management and conservation. Jessica Smith (CNAP) discussed the implementation of monitoring for Pagosa Skyrocket at the newly acquired state-owned property. Susan Panjabi (CNHP) gave a brief presentation regarding recently developed Best Management Practices for Roadside Rare Plants, and an overview of the online Colorado Rare Plant Guide. Moderator Jennifer Neale (DBG) concluded the symposium with a discussion of how we, as a group, can share our conservation successes with a wider audience.

#### For more information:

All of the information from this meeting as well as previous symposia is available online at the Colorado State University, Colorado Natural Heritage Program (CNHP) website: [www.cnhp.colostate.edu](http://www.cnhp.colostate.edu).

The Rare Plant Symposium is open to anyone with an interest in the rare plants of Colorado. For more information contact Jill Handwerk at [jill.handwerk@colostate.edu](mailto:jill.handwerk@colostate.edu) or Jennifer Neale at [nealejr@botanicgardens.org](mailto:nealejr@botanicgardens.org), and check the CoNPS website for details about next year's symposium as they become available.

# From the Editorial Team

First, we must thoroughly thank Jan Loechell Turner and husband Charlie Turner for their many years of service producing this newsletter. It's a huge undertaking, made enjoyable and manageable by the contributions of so many CoNPS members.

We welcome your submissions in the form of field trip summaries, meeting reports, articles about conservation—basically, anything of interest to members—and photos of Colorado native plants.

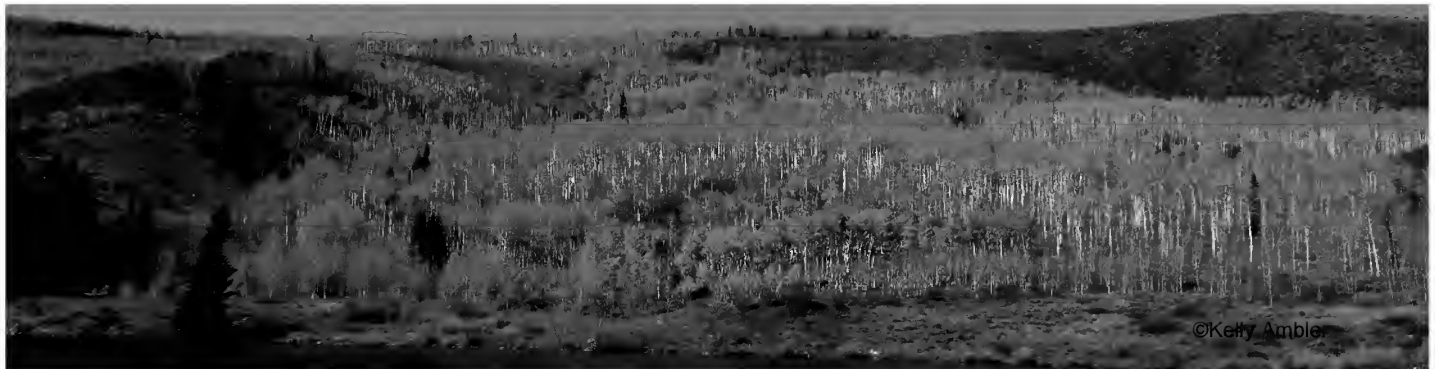
If you aren't interested in writing an article, perhaps you might review a new book, film, or educational program? Or, perhaps you're interested in a particular species of plant—ask a botanist or group of people to contribute to a larger article with you as the editor.

There are endless opportunities to contribute to our mission, which is to further the knowledge, appreciation, and conservation of native plants and habitats of Colorado through education, stewardship, and advocacy.

We can continue that charge with your help. If you'd like to help, but don't know how, please reach out to us. We have lots of ideas!

Mary Menz  
mary.t.menz@gmail.com

Kelly Ambler  
akelly4now@yahoo.com



## **AQUILEGIA: Newsletter of the Colorado Native Plant Society**

Aquilegia Vol. 41 No. 5 Fall 2017  
ISSN 2161-7317 (Online) - ISSN 2162-0865 (Print) Copyright CoNPS © 2017

*Aquilegia* is the newsletter of the Colorado Native Plant Society. Members receive four regular issues per year (Spring, Summer, Fall, Winter) plus a special issue for the Society Annual Conference held in the Fall. At times, issues may be combined. All contributions are subject to editing for brevity, grammar, and consistency, with final approval of substantive changes by the author. Articles from *Aquilegia* may be used by other native plant societies or non-profit groups, if fully cited to the author and attributed to *Aquilegia*. Botanical illustrations, photographs, and other contributions should be sent to the editor.

Managing Editor: Mary Menz,  
mary.t.menz@gmail.com  
Assistant Editor: Kelly Ambler,  
akelly4now@yahoo.com  
Cartoonist: Rob Pudim  
Layout & Design: Kelly Ambler  
Proofreaders: Nan Daniels, Sue Dingwell, Liz Manus, Linda Smith

## **OPERATING COMMITTEE (Temporary)**

Mo Ewing bayardewing@gmail.com, David Julie bldrjardin@live.com, Jessica Smith jpsmith24@gmail.com, Denise Wilson deniseclairewilson@gmail.com, Amy Yarger amy@bigempire.com

## **CoNPS BOARD OFFICERS**

**President:** Vacant, **Vice President:** Vacant, **Secretary:** Denise Wilson, **Treasurer:** Mo Ewing

## **CHAPTER PRESIDENTS**

**Boulder:** Erica Cooper boulderconps@gmail.com; **Metro Denver:** Lenore Mitchell zap979sar@icloud.com; **Northern:** Renee Galeano-Popp mtnpoppies@aol.com; **Plateau:** Vacant; **Southeast:** Rich Rhoades, rr52@q.com; **Southwest:** John Bregar, johnbregar09@gmail.com

## **MEMBERS-AT-LARGE**

Christina Alba christina.alba@botanicgardens.org; Bethanne Bane bethannebane@gmail.com; Preston Cumming wpcumming@gmail.com; Deryn Davidson ddavidson@bouldercounty.org; Ann Grant odygrant@gmail.com; Cecily Mui chmui@hotmail.com; Jenny Neale nealejr@gmail.com; Steve Olson sdolsonoslods@aol.com; Bob Powell robertpowell@durango.net; Jessica Smith jpsmith24@gmail.com; Amy Yarger, Tom Zeiner tzeiner303@gmail.com

## **COMMITTEE CHAIRS**

**Conservation:** Mo Ewing; **Education & Outreach:** David Julie bldrjardin@live.com; **Field Studies:** Steve Olson, Lara Duran Id.ecowise@gmail.com; **Finance:** Mo Ewing; **Horticulture:** Ann Grant; **Media:** Vacant; **Research Grants:** Stephen Stern stern.r.stephen@gmail.com; **Restoration:** Erica Cooper and Renee Galeano-Popp; **Scholarships:** Cecily Mui

## **SOCIAL MEDIA**

**E-Newsletter Editor:** Jen Bousset; **Facebook:** Carol English; **Twitter:** Vacant; **Webmaster:** Mo Ewing

## **CoNPS STAFF**

Linda Smith, Administrative Coordinator, conpsoffice@gmail.com, 970-663-4085; Jen Bousset, Marketing & Events Coordinator, conpspromote@gmail.com; Lauren Kurtz, Workshop Coordinator, lauren.kurtz22@gmail.com

# Revisiting the 2017 CoNPS Annual Conference, September 9

by Nan H. Daniels

*Editor's note: Member Nan Daniels kindly provided Aquilegia with a recap of the September 9 annual conference sessions described below. This kind of documentation provides a valuable recording of the day's events—a play-by-play, if you will—for historical purposes. It also provides reasons for attending the conference. Mark your calendars for next year's conference. You won't want to miss it!*

## Dedication

Colorado College (CC) provided an appropriate venue for the day's events. In Armstrong Hall's Kathryn Mohrman Theater, the morning program was chaired by Amy Yarger, CoNPS board member-at-large and Director of Horticulture at the Butterfly Pavilion in Westminster.



Yarger first introduced Dr. Jack Carter, Professor Emeritus of biology at Colorado College, who dedicated this annual conference to the memory of his colleague Sylvia "Tass" Kelso. Tass was a leader in the field and provided many years of teaching, mentoring, CoNPS service, and field research of the vascular flora of Colorado's middle Front Range.

Her culminating work is a Pikes Peak Flora on CC's Herbarium website; and recent publications, including *Peak to Prairie: Botanical Landscapes of the Pikes Peak Region* and *Flora of the Pikes Peak Region*.

Dr. Carter concluded the dedication by saying "We miss Tass very much at times like this."

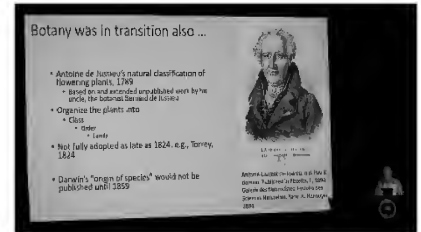
## Morning sessions

### "History of Botanizing in the Pikes Peak Region"

Speaker Tom Schweich, currently collecting in northern Jefferson County, previously was a curatorial volunteer at the UC Berkeley & Jepson Herbaria and a board member of CA Botanical Society. His field work included the Mohave National Preserve area. In his session, he reviewed the years 1803-1865, when the first US expeditions entered the Pikes Peak area, in part due to the encouragement of President Thomas Jefferson (inaugurated in 1800) who was in favor of westward expansion into the Louisiana Purchase. Members of all teams had a scientific bent, and many of the leaders were trained physicians. Some of

Schweich's points included:

- Lewis & Clark's initial collections (1804-06) contained many Colorado plants.
- Lt. Zebulon Pike's first expeditions followed the Red River and Missouri/Arkansas basins into central Colorado and Pikes Peak country.
- Maj. Stephen Long's collections were drawn from locations now in Jefferson, Douglas, and El Paso Counties, and his meticulous diary makes it possible to track those locations.
- Dr. John Torrey's plant identifications were published in four articles long before the published data of Lewis and Clark. The Torrey Herbarium donated his collections to the New York Botanical Gardens and they are now on SEINet.
- Dr. Edwin James was the first botanist to climb Pikes Peak and describe its alpine plants.
- John Fremont made three expeditions through Colorado, mostly on his way to California from 1842-1847, sending his 1842 collected plants to Torrey and Gray (though locations were labeled only by state, as Fremont was not a good journalist).
- Kit Carson's forays into central Colorado were made from his base at Old Bent's Fort.
- In 1861-62, Dr. Charles Parry (the second botanist to climb Pikes Peak, with Elihu Hall and J.P. Harbour) explored Upper Clear Creek and Douglas, Jefferson and Park Counties. Parry, followed by Dr. Edward Palmer, later maintained the USDA herbarium. The Parry/Hall/Harbour collection is the largest in Colorado that was gathered in a single season.
- Although Thomas Nuttall was never in Colorado, many Colorado Front Range plants were named from his non-Coloradan collections, themselves reconstructed from memory because his records were lost.



To round out the list of early botanic collection work, Schweich also mentioned George Engelman, Edward Greene and Alice Eastwood; and he concluded a Q&A period with an 18-item bibliography.

### "Natives: Beauty with Purpose"

Larry Vickerman, Director of Denver Botanic Gardens' Chatfield Farms for the last 12 years, has worked in landscape restoration for 25 years, beginning with his

family's ranch in the Wet Mountain Valley. He holds a BS in Landscape Management and an MS in Not-for-Profit Management. He talked of finding guidance through writings of ecologists Aldo Leopold (*A Sand County Almanac*), Douglas Tallamy (*Bringing Nature Home: How You Can Sustain Wildlife with Native Plants*), and Willa Cather (*O Pioneers!*).



Vickerman urged gardeners to expand from the appreciation of nature primarily as beauty to include other values. He said the pursuit of botany needs to

evolve, especially with native plants, in supporting biodiversity. In a country with 80,000 alien species, gardeners and land managers can learn to focus on native habitats: restoration, adaption, removing-managing invasives, and especially fostering native pollinators, including honeybees. He reminded the audience there are both specialists (native pollinators mostly specialize) that co-evolve with flower structures and generalists (mostly non-natives).

He described the Gardens at Chatfield DBG, a floristic series of wildflowers. Vickerman recounted the multi-year restoration of the Deer Creek oxbows in the wetland adjacent to the parking lot, with the purpose of creating a riparian demonstration garden. Removing smooth brome and using temporary sod plugs (TSPs) to reestablish the oxbows, the Chatfield team combined seeding, bulbs and transplants for best diversity. The Chatfield project thus urges a wider concept of garden, taking on a new purpose by utilizing native plants and recreating vestiges of the rich ecosystems that once thrived there to help provide critical habitat to a host of insects and wildlife. Participants received a handout of resources.

Vickerman suggested getting involved with the Butterfly Pavilion via [ayarger@butterflies.org](mailto:ayarger@butterflies.org) or with the Chatfield volunteers (specify the Restoration Project through Denver Botanic Gardens).

### **"Pretty Tough Plants"**

Pat Hayward, with more than 35 years in Colorado's garden and nursery industry including 12 recent years directing Plant Select®, shared some of the program's best selections of plants rooted in Colorado natives. The purpose of



Plant Select® is to identify and make available landscape plants that will not only survive but thrive in our challenging intermountain and high plains regional climates and soils.

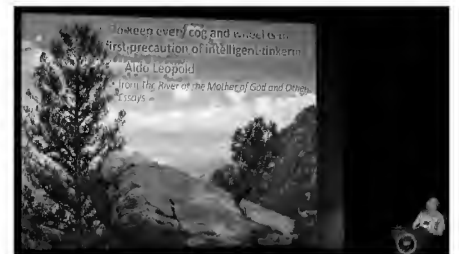
Plant Select® plants are selected according to eight attributes.

- Flourish with less water;
- Thrive in a broad range of conditions;
- Habitat-friendly;
- Tough and resilient in challenging climates;
- One of a kind/unique;
- Resist disease & insects;
- Long-lasting beauty; and
- Non-invasive.

Some have been discovered or developed by regional horticultural professionals including David Salman, Lauren Springer-Ogden, Panayoti Kelaidis, and Kelly Grummons. These have been trialed and tested at DBG, CSU sites, and public and private gardens. Some 72 plants on the Plant Select® list so far have Colorado native "roots," of which Hayward highlighted 19 groundcovers, perennials, ornamental grasses, shrubs, trees and vines, and she included descriptions of these on a handout, along with resources. The Plant Select® website is now searchable: [www.plantselect.org](http://www.plantselect.org).

### **"Bioblitz Information Distribution"**

Steve Olson, career Forest Botanist for the US Forest Service



has been based for the last nine years out of Pueblo, covering Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands (PSICC). Olson described a bioblitz as studying an area and documenting its ecological diversity (flora, fauna, and other organisms) during a brief period of time in a specific area of land. The term and practice of "blitzing" may have been derived from studies in the Great Smoky National Park.

In recent years, CoNPS has sponsored and otherwise participated in a number of bioblitzes, including those in Picket Wire Canyonlands, Rampart Range, Cimarron NG, Browns Canyon, Rampart Range, Manitou Experimental Forest, East Lost Park, Greenhorn, Black Forest, and the latest (2017) in Lake County.



Purposes of bioblitzes varied. Reasons for bioblitzes include:

- A count or inventory of all life in an area for scientific study;
- An inventory of a specific species or group of species for research with or without monitoring;
- A list and map of noxious invasives for weed management planning; and
- Educational training for students and volunteers, even a largely social gathering of botanists and other scientists.

Results may vary due to weather of the day, climatic extremes (for example, seasonal drought or unusual precipitation), participation of volunteers (greatest at a “destination” location), purpose, time within season, and participants' interests and skill levels.

Olson summarized the numbers of vascular plants identified in eight of the PSICC bioblitzes attended by CoNPS volunteers over the last seven years. These results, with detail, are distributed according to sponsorship of the blitz: parcel management organizations (for example, BLM, USFS, Army, or Colorado State Land Board), scientific groups such as CNHP, county weed coordinators, and so on.

In discussing the results of the bioblitzes, Olson quoted Aldo Leopold from *The River of the Mother of God and other Essays*. “To keep every cog and wheel is the first precaution of intelligent tinkering.”

### Afternoon sessions

Afternoon sessions were moderated by Denise Wilson, CoNPS secretary and board member.

### “Land and Water Preservation in Southern Colorado”

Linda Overlin, who has worked for many years with the Palmer Land Trust as longtime board member, past president, and land steward, has also taught biology, chemistry, ecology and botany at community college and high school levels. With a ranching and

community background, a BS in Biology and a MS in Riparian Ecology, and Native Plant Master® credentials, Overlin's passion is her land and water preservation work.

With Colorado's expansion have come pressures on land and water resources: oil & gas development, split estates, and unplanned development. The purpose of the Palmer Land Trust is to preserve valuable agricultural resources and scenic vistas, and this relies on forming partnerships with and between farmers, ranchers, managers of adjacent public properties and conservationists. Colorado water law ties vast amounts of water to land ownership, much of it in private hands. Innovative land and water conservation efforts are seen in the public work of individuals, for example, the Red Rock Canyon Open Space.

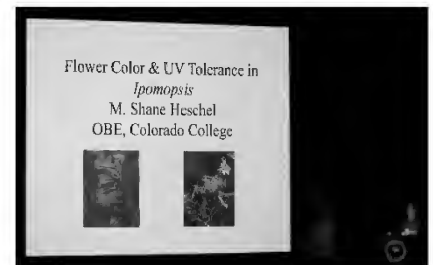
To implement efforts such as loans to young farmers, keeping farmers in farming, working with private developers, the Super Ditch, and cluster development, Overlin discussed vision and funding—leadership, connectors, spreading the word, perseverance, patience, support of science, databases and maps, wide-based support, collaborating with like-minded organizations, celebration, and involving kids. From the north slope of Pikes Peak through the lower Arkansas Valley, the Palmer Land Trust provides stewardship of 104,000 acres preserved in perpetuity in 10 counties, with over 100 landowner partners, and 17 public parks and open spaces.

### “*Ipomopsis* UV Tolerance Tradeoffs: Flower Color and Pollinators”

Dr. M. Shane Heschel is Chair and Associate Professor of Organismal Biology and Ecology (OBE) at Colorado

College. With a BS and MS from University of Illinois, Urbana and PhD from Brown University, his research interests include conservation genetics, factors driving local extinction of plant populations, physiological ecology of plant populations (particularly in stressful environments), and local adaptation and evolution of physiological mechanisms.

Heschel and CC-OBE students—with USFS and other support—studied the widely distributed native flower *Ipomopsis aggregata*, which presents in rosette form for two to five years (biennial/perennial). Then, its tubular blooms vary from dark red to lighter rose-colored hues.



UV stress and elevation affect photosynthetic efficiency, as seen in varying levels of *I. aggregata*'s red pigment called anthocyanin. The investigators pursued three studies: Anthocyanin content of leaves for scarlet and pink morphs, physiological consequences of flower color for UV tolerance, and seed viability for dark (scarlet) and light (pink) morphs. They also noted differences in pollination, with hummingbirds preferring the scarlet morphs and hawk moths preferring the lighter-colored populations, most often found at higher altitudes.

In summary, Heschel's team found that dark (scarlet) *I. aggregata* individuals seemed more resistant to UV radiation than light (pink) flowered individuals, whereby the scarlet flower color correlates with increased anthocyanin content in leaves and dark-flowered plants have higher photosystem efficiency, germination rates, and seed mass. Is there a physiological trade-off between UV protection and pollinator attraction? At high elevations, *I. aggregata* may not be able to both protect itself sufficiently from UV-B radiation and maintain the lighter pink flower color preferred by hawk moths.

Future study directions include:

- Continuing current investigations for additional seasons;
- Adding in-breeding depression and its effect on morphology and physiology; and
- Outcrossing and pollen movement.

In the Q&A period, Heschel clarified that the *Ipomopsis* seen in a salmon or peachy pink color in SE Park County and elsewhere (as contrasted with the rosy shades of *I. aggregata*), may be a hybridization, such as with *I. tenituba*. It was not part of the investigation.

### "The Astonishing Beauty of Pikes Peak Alpine Flora"

Doris Drisgill's favorite habitats are alpine and subalpine, and she has led wildflower field trips since 1993 with El Paso County Parks and with the CoNPS SE Chapter since its inception in 2001. She is an enthusiastic amateur who has taken botany seminars with George Cameron, Linda and Richard Beidleman, and the Colorado Trail Foundation. With the orchestral



music of Mozart's *Divertimento* selected by Curtis Nimz, and some photos provided by Bob Drisgill and Curt Nimz—along with her own photos—Drisgill presented "a casual survey of Pikes Peak alpine flora." The above-treeline heights of the Pikes Peak area are relatively isolated, described Drisgill. The

parent rock that was formed 1.5 billion years ago is a coarse-grained pink to light-red granite. It erodes into sharp-edged gravel, challenging plant growth. Bunch cushion plants have nonetheless gained a foothold on the Peak.

On a featured field trip on the Elk Park Trail, "gravel dunes" are evident, differing from dunes derived from sandstone, and the flowers are different from those on eroded sandstone. Some of the most common natives along the Elk Park Trail include:

- *Geum rossii* (Alpine Avens);
- *Mertensia alpina* (Alpine Bluebells); and
- *Aquilegia saximontana* (Dwarf Alpine Columbine).

Drisgill explained the features that distinguish these three look-alike species.

### "Black Forest Landscape Ecology and Relict Tallgrass Prairie Rare Plants"

Judy von Ahlefeldt has been studying the Black Forest for 47 years. She lives where Black Forest spans the Palmer Divide, the site of her PhD dissertation



on landscape ecology. There, one finds a juncture of Rocky Mountain and Great Plains floras, where a careful assessment reveals the presence of relictual tallgrass big-bluestem/little bluestem, tallgrass prairie, associated grasses and disjunct, relictual forbs. A teacher, author, ecologist, and publisher, von Ahlefeldt in 2015 organized a bioblitz to assess post-fire status of tallgrass prairie relict species, and gained the support of El Paso County Parks, local citizens, CoNPS, CNHP and DBG.

Von Ahlefeldt provided a brief history of the area studied, including:

- Its geology;
- Previous rare plant/ prairie studies;
- A mention of Folsom points from Native American hunting peoples;
- Early European explorations; and
- The settlers who stayed on to farm and ranch. Photos showed an eroding landscape.

Prairie relict plants with G5 S1/G5 S2 rankings in the Palmer Divide were studied by the Core Team of Tass Kelso, former Pineries Ranch Manager Kent Timmerman, and von Ahlefeldt, plus bioblitz participants. The 2015 assessment determined not just survival from the 2014 fire but a year of actual recovery of the tall grasses, which continues into its third year.



## Keynote Speaker



### **“Ecological Restoration and Environmental Ethics”**

Closing keynote speaker, Marion Hourdequin, was introduced by Colorado College colleague Jack Carter. Her talk touched on themes of care, hope, and reflection. Hourdequin is Chair and Associate Professor of Philosophy at Colorado College, specializing in

environmental philosophy. Her current research focuses on climate ethics, climate justice, and social and ethical dimensions of ecological restoration. She is author of *Environmental Ethics: From Theory to Practice* (Bloomsbury 2015) and editor with David Havlick of *Restoring Layered Landscapes* (Oxford 2015). Hourdequin serves on the editorial board of *Environmental Ethics*.

Hourdequin noted that her talk sought to suggest that the engaged, place-based, contextually-sensitive approaches of naturalists—such as Aldo Leopold—provide important lessons for both restoration and environmental ethics. Her opening slides portrayed restoration as a path, as hopeful and as attentive to the particular.

To orient the day’s discussion, Hourdequin contrasted the definitions of restoration by the Society for Ecological Restoration (SER) in 1990, which is to return a habitat to an original historic state; and in 2002, which is to assess and assist recovery. The traditional model, as reflected in the 2002 definition to returns the land to a pre-disturbance state, is tricky, possibly pretentious, and has sometimes been short-sighted. One such example is the concept of a virginal pre-European landscape in the US, which ignores the many centuries of change brought by earlier peoples and animals such as the bison.

Hourdequin said restoration is complex, and includes:

- Layered landscapes;
- Complex ecological and social histories;
- Distinct shifts in land use and characteristics through time; and
- Has ongoing dynamism and change.

These complexities provoke deep questions about human intervention in nature, its aims, and its consequences. One finds meaning and value—social, ecological and socio-ecological—in many of these layers.

Hourdequin drew on examples from the processes of restoration at former US military sites. The former Army Rocky Mountain Arsenal in Adams County is now a National Wildlife Refuge, administered by the Fish & Wildlife Service. Big Oaks NWR in Indiana was previously the Army’s Jefferson Proving Ground. The bunkers of the former cold-war Loring Air Force Base (Strategic Air Command and Caribou Station) in Maine now serve as bat hibernacula in Aroostook National NWR. One lesson from these examples is that restoration is a continuing conversation.

She cited the work of Barbara Westfall’s “Daylighting the Woods” art project at the University of Wisconsin Arboretum. Restored landscapes affect us in ongoing ways. Said Hourdequin, “We shape landscapes, and afterwards, those landscapes shape us.”

Another major lesson for environmental ethics: Think big, but also think small. She described how Aldo Leopold in *A Sand County Almanac*, mused “He who hopes for spring with upturned eye never sees so small a thing as *Draba*. He who despairs of spring with downcast eye steps on it, unknowing. He who searches for spring, with his knees in the mud finds it, in abundance.” He continued: “*Draba* plucks no heartstrings. Its perfume, if it has any, is lost in the gusty winds. Its color is plain white... Nothing eats it, it is too small. No poet sings of it. Some botanist once gave it a Latin name, and then forgot it. Altogether it is of no importance – just a small creature that does its job quickly and well.” (Leopold 1949, 26).

Hourdequin also shared Leopold’s thought on restoration as planetary managers. In his unpublished work “Wherefore Wildlife Ecology,” Leopold discussed his relational ethic. “There are two things that interest me: the relation of people to each other, and the relation of people to land.”

Hourdequin finished by sharing that ecologists at Aroostook NWR in Maine recognized the constraints and limitations of the former military function as well as its value to surrounding communities, and the relationship of the NWR to local agriculture. It took creative approaches and thoughtful planning to “partner” with the natural world.

### **For more information**

- Tributes to Tass Kelso can be found in the Annual Conference 2016 issue of *Aquilegia* (Vol 40, No 4).
- For Dr. Jack Carter’s review of *Environmental Ethics*, see the Spring 2017 issue of *Aquilegia* (Vol 41, No. 3

(continued on page 17) ➡

## Field Trip Reports, September 10, 2017

Attendees look forward to the post-conference field trips. The following field trips were offered at this year's Annual meeting:

- "Blodgett Open Space: At the Edge of the Waldo Fire" by Doris Drisgill
- "Fire Mitigation in Stratton Open Space" by George Cameron
- "Fountain Creek Riparian Hike" by the Sierra Club
- "Grasses of Cheyenne Mountain State Park" by Rich Rhoades
- "Colorado Springs Utilities Xeriscape Demonstration Garden Tour" by Catherine Moravec and Carey Harrington
- "Ecology of North Cheyenne Canyon" by Steve Olson

Following are summaries of two of the trips.

### Fountain Creek Riparian Hike

Led by Fran Blayney, Sierra Club, Rocky Mountain Chapter

One of the goals of the Fountain Creek Water Sentinels (FCWS) is to educate the community about watershed issues. On September 10th, Fran led members of the Colorado Native Plant Society on a hike along Fountain Creek. They began the walk at the Fountain Creek Nature Center in Fountain, Colorado. CoNPS members strolled along the dirt paths of the Nature Center and learned the value of riparian wetlands.

Attendees searched for Monarch caterpillars on the numerous milkweed plants that grow along the paths. None were to be found but attendees saw hundreds of grasshoppers! The occasional Monarch butterfly showed its brilliant orange wings.



There were blue herons, turtles, carp, and frogs in the ponds. The FCWS encouraged the planting of milkweed in backyard gardens to attract Monarch butterflies and discouraged the use of weed killers which can cause lasting damage to the watershed.

The hike was mutually beneficial as the FCWS were able to share with CoNPS members the value of riparian areas and the crucial role they play in a healthy watershed, and CoNPS members shared their knowledge of native and invasive plant species. It was a fun day and a great way to meet members of the community!

### Xeriscape Garden Tour

Led by Catherine Moravec and Cary Harrington  
Report by Cary Harrington



A group of seven CoNPS members enjoyed a tour of the Colorado Springs Utilities Xeriscape Demonstration Garden with Catherine Moravec, horticulturist and conservation specialist. This is the oldest xeriscape demonstration garden in the state.

Highlights included the newly renovated cactus garden as well as the marvelous crevice rock garden, the award winning Waterwise Neighborhood, and the newly built raised bed vegetable garden. Attendees were surprised by the size and variety of the Garden. Many mentioned that it truly should be a destination for anyone visiting the area.

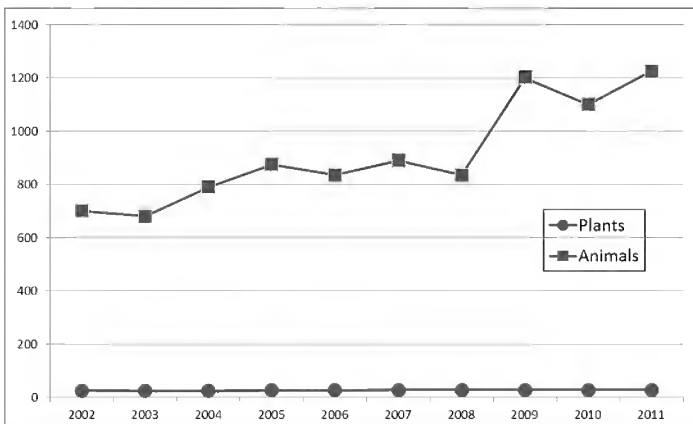
If you are going to be in the Colorado Springs area, visit the garden! The garden is at 2855 Mesa Rd, Colorado Springs, CO 80904. For much more information (including the garden's plant database and fact sheets) visit <https://waterwiseplants.org>.

## The Native Plant Conservation Campaign – a National Native Plant Society for the United States

by Emily Brin Roberson,  
Director, Native Plant  
Conservation Campaign

It all starts with photosynthesis. Plants turn carbon dioxide, water and sunlight into life and oxygen. Without plants to produce food, shelter and air, other species simply cannot survive.

And yet plants are discriminated against in every aspect of laws, policies and budgets for science and conservation. Even conservation groups often ignore native plants in their advocacy and outreach.



*Imperiled plants receive a fraction of the funding, staffing and protection provided for imperiled animals. Comparison of total endangered species spending for plants vs. animals 2002-2011. (Havens, K., A.T. Kramer and E.O. Guerrant, Jr. 2014. Getting plant conservation right (or not): the case of the United States. Int.J. Plant Sci. 175 (1): 3-10.*

That is why I created the Native Plant Conservation Campaign (NPCC) – to fight for the native plants that give life, that sustain this planet's stunning biological diversity, that make up our glorious natural landscapes and that keep us all alive - and also to support the extraordinary people who work to understand and conserve these amazing organisms.

The NPCC developed within the California Native Plant Society (CNPS). In the 1990s, I was on the conservation staff at CNPS. At that time CNPS was involved in one of the first lawsuits trying to force the

government to list imperiled plants under the federal Endangered Species Act (FESA). The stated goal of FESA is to prevent species extinction. So, as plants were added to the endangered species list, CNPS expected that they and their habitats would be protected.

Sadly, that was not the case.

It turns out that FESA gives only listed animals protection from death and extinction. Federally listed plant species are protected only in limited circumstances, primarily if they are fortunate enough to live on federal lands or in the path of a federal project such as highway maintenance. So FESA leaves many listed plants, among the most imperiled species on the planet, completely unprotected from willful destruction, even from the eradication of entire species. This ludicrous provision is known as the "plant exception" to the FESA. Because of it, listed plants are bulldozed for logging and development, crushed by off-road vehicles, grazed, trampled, dug up for collectors and otherwise destroyed without penalty (for details see the Equal Protection for Plants page on the NPCC website).

In response, I launched the Equal Protection for Plants Project for CNPS in 1999. Its goal was to organize support within the scientific and conservation communities for correcting the plant exception. We drafted an organizational sign-on statement calling for equal protection for plants under the FESA. The first groups we contacted were other U.S. native plant societies (so long ago that the invitations to prospective signers went via the Post Office!). The Equal Protection for Plants statement has been endorsed by 75 scientific, botanic and conservation groups, and counting.

We found that most U.S. states had native plant societies similar to CNPS. We also realized that, like the FESA, many of the obstacles we faced in plant conservation were national in scope. We needed a national native plant conservation organization to combat these problems. And so the NPCC was born. Native plant societies joined and the NPCC became a nationwide network. It was then moved to a national parent organization, the Center for Biological Diversity. We incorporated as an independent non-profit corporation in 2016.

Today, the NPCC has 49 Affiliate groups representing almost all 50 states and more than 150,000 plant enthusiasts. Affiliates are native plant societies,

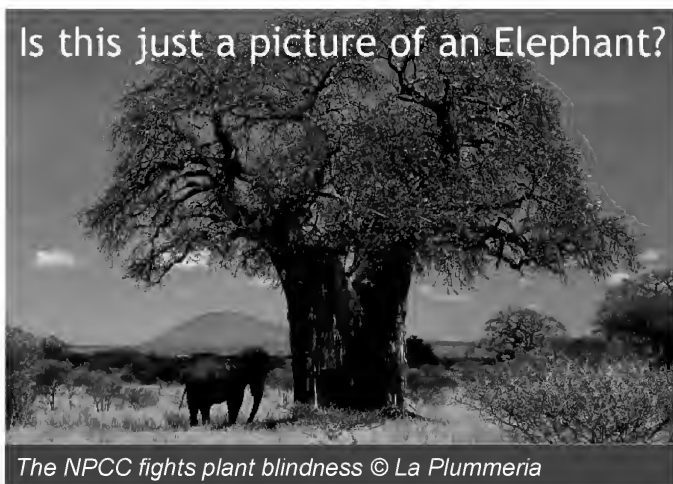
wildflower clubs, botanic gardens, and botanical societies. They range from small societies of a few hundred members to large gardens with tens of thousands of members. We have essentially created the national native plant society of the United States; it is likely the first such network in the world.

The mission of the NPCC is to promote the conservation of native plants and their habitats through collaboration, research, education, and advocacy. We carry out this mission in a number of ways.

Our Network of Affiliates is the core of the NPCC. We work with Affiliates to share information and expertise and to educate each other, the public, and policymakers about the importance of native plants. We hold conference calls and have launched an online discussion group to help Affiliates collaborate with and learn from each other, share successes and vent frustrations.

We also carry out our mission through programs and projects. NPCC's team of Advisors, distinguished botanists recruited from universities and other institutions help us make sure these programs are botanically sound.

The Equal Protection for Plants Project uses research and public outreach to raise awareness about the inferiority of legal protections for imperiled plants under the FESA and other state and federal conservation laws. We also combat the pervasive underfunding and understaffing of plant science and conservation programs. We fight "plant blindness", a



term botanists coined in 1996 to refer to "the inability to see or notice the plants in one's own environment." The Important Plant Areas (IPA) Program collects information about and images of botanically significant natural areas in support of the Global Strategy for Plant Conservation (part of the Global Convention on



Biological Diversity). The Program will eventually produce a national database of botanical hotspots for conservation, research and education. In May of this year, we created the Important Plant Areas Partnership. It consists of the NPCC, Botanical Gardens Conservation International U.S., the Plant Conservation Alliance Non Federal Cooperators Committee, and CNPS. The Partnership advocates for the designation and protection of IPAs as integral to the conservation of our flora. We have been collecting information from Affiliates about IPAs in their regions since 2015.

The Right Plant, Right Place Project encourages the use of locally appropriate native plants in gardening and land management. We promote initiatives like the National Seed Strategy, CNPS Calscape, Operation NICE (Natives Instead of Common Exotics) from the Native Plant Society of Texas, and the Xerces Society's pollinator gardening program that help supply local natives for planting projects.

The Speak out for Plants! Program offers materials and assistance to help people speak out for native plant science and conservation to policymakers and the media. The project spotlights the Ecosystem Services provided by native plants, such as water purification, wildlife habitat, storm protection, soil fertility, climate change moderation and food and water security. We also work to maintain the funding, integrity, independence and transparency of botanical and other scientific programs. To further these goals, we help people register to vote so that elected officials know that the plant community can and will hold them accountable.

One challenge we face is that plant and wildlife conservation groups have tended to work in near isolation from one another. Plants have simply been overlooked by many large conservation groups. So we

educate these groups about the importance of native plants and encourage them to include plants in their advocacy. (There is progress. These days, only occasionally is it necessary to remind them that plants actually exist.) We also help them to make use of the tremendous expertise and other resources in the plant community. In a partnership with the Endangered Species Coalition, for example, we are providing locally appropriate plants for pollinator gardens and helping local plant advocates educate elected representatives and the media about the threats to the FESA and other conservation laws from the current Congress and president.

You can help! Sign up for NPCC News on our home page to keep up with plant news and receive action alerts. Of course we appreciate donations. You will find a Donate button on the NPCC homepage. We also need volunteers for all sorts of projects from photography and fundraising to outreach and species management. The NPCC Jobs page offers descriptions of volunteer positions. Check out the 'Speak Out for Plants!' page for tools to help you communicate with the media and elected officials on behalf of native plants. Request our Save Plants Save the Planet Brochure or Ecosystem Services Infographic and share them at events. Register yourself and a friend to vote - and let us know. Tell us if you know of reliable sources of locally appropriate native plants in your area so we can add them to our resource list.



*NPCC Advisor Professor Doug Tallamy gives popular talks on the benefits of gardening with natives, including supporting wildlife © Doug Tallamy*

Native plants give us the air we breathe, clean and store water, buffer extreme weather, and create the soil that nourishes us. Native plant diversity offers staggering beauty while stabilizing our food supply and providing medicines that keep us alive. The goal of the NPCC is to establish sound native plant science and conservation as a foundation for land and species management. We will all live in a healthier, more sustainable, secure, beautiful and bountiful world when that becomes the case. To learn more, go to [PlantSocieties.CNPS.org](http://PlantSocieties.CNPS.org).

## Review: Online Film

### New Online Water Efficiency Film Spotlights Colorado's Beauty, Opportunities by Don Ireland



*A hummingbird takes advantage of the native plant xeriscape gardens in the Cherry Creek 3 subdivision.*

Saving water sometimes is one of those forgotten "benefits" of incorporating native plants into suburban and urban lawns. In a state whose population is growing at a record pace and our primary water supply is dependent on snowfall in the mountains each winter, one can only ponder when an abysmal snowpack, drought or excessive human demand may significantly impact our lives.

Colorado's unparalleled beauty and the need for everyone in the state to consider water efficiency are at the core theme of a new film, *Doing More With Less: The Challenge and Opportunity of Water Efficiency*. The 11-minute movie is the cooperative effort of the Colorado Water Conservation Board and the One World One Water Center at Metropolitan State University of Denver. The video is from the



← (continued from previous page)

Colorado Water Conservation Board and One World One Water Center at Metropolitan State University. The movie is on the water efficiency page of the Colorado Water Conservation Board.

Jim Havey, whose Havey Pro Cinema studio created *Doing More With Less*, said the effort took more than 6 months and included shooting locations ranging from Denver to Fort Collins, the Western Slope to the Eastern Plains, Roaring Fork Valley to the Fryingpan River, Aspen and many other locations in between.

Those involved professionally with water in Colorado have long advocated the importance of managing this vital resource. Those creating the movie, however, opted to spread the message using some new voices and faces, too. "We didn't interview just experts. We wanted to interview some everyday people who are concerned and doing things, too," said Mr. Havey. "It was really inspiring to work with a variety of people from policy makers to everyday people, who all understand the urgency of the need to use water and use it wisely."

Denver Park Hill resident Tracy Rackauskas underscores the movie's message in the opening segment by using water thoughtfully on her home vegetable garden. "I think it's really important that we're careful with water and we try to do whatever we can."



Sterling Ranch, the futuristic, high-tech planned development in Douglas County, is spotlighted for its plans to manage water demands as the 12,000-home community is built in the coming decades. So is 51-year-old Cherry Creek 3 HOA in Denver, which has slashed its water consumption by more than 10 million

gallons with efforts involving high-efficiency toilets and water-wise landscaping.

With the release of Colorado's first water plan in 2015, the Colorado Water Conservation Board set a measurable objective of 400,000 acre feet of water demand reduction by 2050. An ambitious objective like this requires every Coloradoan to do more with less going forward.



This is not the first time Havey has created a movie about Colorado Water. A few years ago, Havey Pro Cinema produced "The Great Divide," a full-length documentary that explains the importance of water in the state from the pioneer days to present-day Colorado. The documentary is periodically shown on public broadcasting stations in Denver. Havey Pro Cinema, which has won two Emmys and multiple other awards, is known for creating historical movies and documentaries for parts of the Rocky Mountain State.

"*Doing More With Less*" highlights the need for all regions and all residents of the state to get involved with water efficiency, so Colorado can manage the needs of a greatly-growing population in the years ahead. "Without water, you can't think about kayaking a river, drinking a locally-crafted beer or growing a tomato plant. Water is an essential ingredient for life and living well no matter where you are in the Centennial State," said one of the people involved in the film. "Spreading the idea of water efficiency to the state's 5.4 million citizens is a daunting task, which is why the film sponsors hope that everyone will use their online outreach and whatever means available to get the message to young and old and to every community in Colorado."

*Editor's note: Don, and wife Lynn Ireland, joined CoNPS this year and are featured in the film at their homeowner's association, Cherry Creek 3 of Denver.*



### The Awkward Relationship between *Homo sapiens* and Planet Earth by Jack Carter

When I, as do so many of you, present lectures and workshops to a wide range of people in which we are encouraging them to become familiar with the local flora, to plant native plants that require less water, to plant and conserve those species that are important to insects, birds and other animal species, a wide range of questions come from this very heterogeneous audience. The central theme of these comments and questions centers on basic information concerning what plant species to plant, requirements for local plant growth and development, and where to acquire local plants. Either I have answers to these questions or members of the audience can provide solutions and sound suggestions. But with some regularity there are several deeper questions that are challenging and at the same time demand more serious thought.

Some people seem to want to delve into my personal belief system and want to know how I can continue to be so concerned about planting and caring for the local native plant species, while the biological diversity of the earth is rapidly being destroyed. Recently one of these questions stuck with me, not only because of its directness, but also the “take no prisoners” attitude of the questioner. It seemed to me he was asking,

---

*“What are some of these larger concepts that demand that we protect biodiversity, improve the quality of environmental education, and reduce the human population over planet earth?”*

---

“What are you doing beyond encouraging the planting of native trees to conserve the long-term future of planet earth?” To say it another way, “What are the major issues in society to which we must attend if this earth is going to continue to be a place where large destructive mammals like *Homo sapiens* can survive?”

Following on the more challenging questions, I recognized I literally do have two sets of ideas or concepts on which I operate. One is a list of recognizable, close to home, environmental problems that allowed me to write and publish *Trees and Shrubs of Colorado*, and directly encourage the correction of serious environmental problems we face right here in Denver and throughout Colorado. At this level, I am able to suggest we plant and care for local native plant species, protect the national and state parks, conserve water, reduce carbon dioxide, reduce

erosion, and reach out to people of all ages encouraging them to protect the environment that surrounds them.

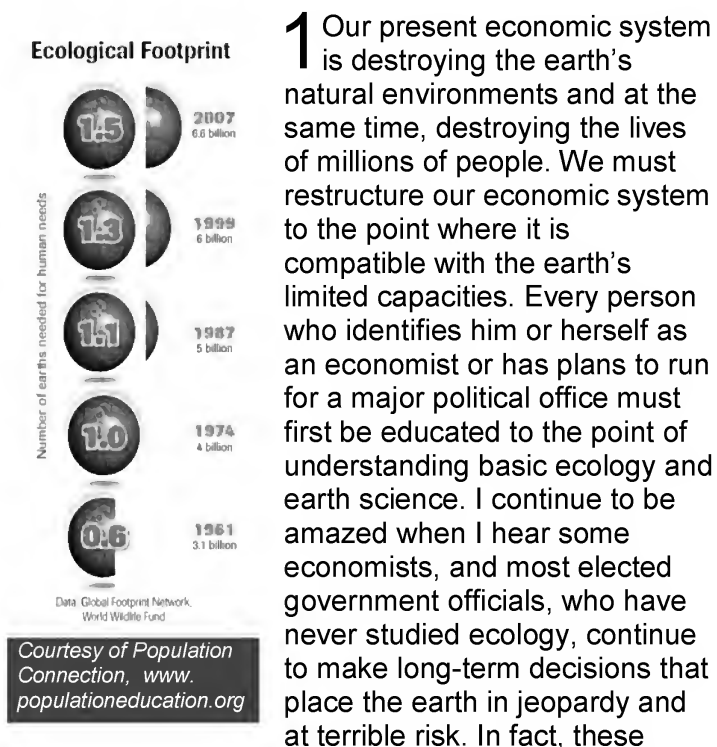
But, as with most of you, I do hear another drummer and I have been hearing a number of drummers for a good part of my life. I am not a self-made person. The challenge came from my teachers, professors, and my environment for more than eighty plus years to read, study and listen to a much larger array of scholars and scientists who have made the case for protecting the only earth we have. Reading the works of such people as Henry David Thoreau, Rachel Carson, Paul Ehrlich, Edward O. Wilson, David Ehrenfeld, Garrett Hardin, Lester R. Brown, Eugene Odum, E. F. Schumacher, Carl Sagan, Aldo Leopold, John Muir, William deBuys and many others, has allowed me to develop a list of much larger concepts that I could not address in a single lecture or workshop. I have developed my own person, and beliefs, through these powerful authors that I can almost consider personal friends. They have challenged me to attend to environmental issues not only close to home, but at the same time recognize that every organism that makes up each ecosystem must be protected. And that terms like kindness, conservation, carrying capacity, and limits must be understood first by humankind, before stocks, bonds, and derivatives can be of any value on a small, crowded, and mistreated planet.

In recent weeks, since the powerful winds and rain off the Gulf of Mexico swept over south central Texas and portions of Louisiana, literally destroying hundreds of communities, thousands of homes, and bringing total havoc to thousands of lives, I could not believe what was taking place right before my eyes. Television almost demands you watch this terrible sight and hear the frustrated and hopeless voices of those confronted with this horrible dilemma. For me, this is so painful because I am familiar with that beautiful coastline, and having enjoyed taking many plant geography and field botany classes to that area to study the flora and birds of the wetlands.

But the real shock for me is that so many of the individuals interviewed were also quick to say they are returning to that area as soon as possible, after being driven out two and three times under such horrible conditions. Perhaps it is my science background, but what I have been observing is just totally impossible to

comprehend. The only place on earth where I have observed and heard a similar story was in Bangladesh on two separate occasions. Are *Homo sapiens* just shortsighted, or is there something more I don't understand? It appears to me this one species is crowding itself into horrible conditions, and that we are reaching limits on earth that this species fails to understand. Twenty-five years ago, I read Garrett Hardin's *Living Within Limits: Ecology, Economics, and Population Taboos*, and it challenged me to listen and study a wide range of other drummers. The earth has become a very crowded place.

What are some of these larger concepts that demand that we protect biodiversity, improve the quality of environmental education, and reduce the human population over planet earth? These concepts have been around hundreds of years, but they have not become a reality for humankind. Here are just a few of my best examples.



**1** Our present economic system is destroying the earth's natural environments and at the same time, destroying the lives of millions of people. We must restructure our economic system to the point where it is compatible with the earth's limited capacities. Every person who identifies him or herself as an economist or has plans to run for a major political office must first be educated to the point of understanding basic ecology and earth science. I continue to be amazed when I hear some economists, and most elected government officials, who have never studied ecology, continue to make long-term decisions that place the earth in jeopardy and at terrible risk. In fact, these

uneducated citizens continue to draw a large part of the population along with them as they make literally horrible decisions concerning the future of planet earth and all living things. It is time to make "Earth First" much more than a bumper sticker. It must become a way of life for all living things, including humankind.

**2** Comprehending and living with climate change over planet earth is just one more lesson we must come to understand and respect. We often hear people say, "We all talk about the weather, but we can't do anything about it." Not true! Humankind has done a great deal about the climate on planet earth and much of it is extremely bad for human health and the health of many other living organisms. For me it all

started during the drought in the Midwest, during the Dust Bowl of the 1930s. I saw the clouds of dust that destroyed the central states, small communities and the national economy. Drought in the Southwest is real and will continue to destroy the lives and livelihoods of many living things. Los Angeles, Phoenix, or Albuquerque without water will take human lives, right along with thousands of other plant and animal species. Inexcusable ignorance, greed, and denial do not bode well for the future of the Southwest.

**3** Stabilizing and reducing the human population needs to take place. Earth economics isn't working for millions of *Homo sapiens* and every day the problem becomes greater. This very real problem will not be cured by simple good will. We are on a path to continue starvation, with the ensuing destruction of the lives of millions of people over the earth each year. As responsible humans, we need to take a serious look at our numbers and determine what actions we can take to prevent the perpetuation of this problem – we need to do this for our own benefit and for the benefit of the plant communities we know and love.

**4** There are intricate relationships among plants, animals, photosynthesis, CO<sub>2</sub>, oxygen and respiration that humankind continues to overlook, ignore, or perhaps simply does not wish to understand. Most people fail to conceptualize the connections that exist among these basic aspects of biology that allow the earth to persist in its basic form. I am afraid most adults would have serious difficulty writing a paragraph describing the connections among these terms that are so important to living systems. I am amazed at how little knowledge people have of the flora in relationship to the fauna that surrounds them, and the limited knowledge they have of the plants growing on their property. When it comes to selecting even a few native plants that are appropriate to the ecosystem in which they live, they seem to have no idea where to begin this task in basic biology. Humankind fails to recognize the homeostasis and sharing that must go on among all living things over planet earth. It is as though the vast majority of people never completed a single course in life sciences or ecology.

**5** Eliminating landfills in favor of an economy that is totally recyclable is an idea poorly understood by many people, but at the same time in nature there is no need for a landfill. Nature depends on cycles to maintain life and there are no systems where raw materials go in and garbage comes out, except those created by humankind. As long as there are landfills we are continuing to produce an earth that is less and less inhabitable and at the same time drastically reducing natural resources at the expense of future

generations. There is no excuse for landfills. Every single thing that goes into the landfill is recyclable. If we are serious about strengthening our economy, creating new jobs and extending the life of humankind on earth, we will start today, if not sooner, cleaning up the mess we call landfills. Once this is understood, the price of every single item we purchase will include the cost of recycling.

**6**Contributing our time and personal wealth to those conservation and environmental institutions that are most important to the long-term future of planet earth are the greatest gifts we can give. Also, there is tremendous power in numbers when we join together with others to make our voices heard. Several years ago while president of the Native Plant Society of New Mexico, I pulled together the information available on plant sales from six chapters of the Native Plant Society of New Mexico in one growing season. These chapters sold and made available to their membership and other friends living in their communities more than 1,300 native plants.

---

*"Our intelligence and our technology have given us power to affect the climate. How will we use this power? ..... The Earth is a tiny and fragile world. It needs to be cherished." Carl Sagan, Cosmos (1980) page 103*

---

These species went into the soil over the state and immediately started drawing carbon dioxide from the air and pumping oxygen back into the environment. That is progress on a small scale, but think of the potential of this many trees and shrubs planted each year over twenty or one hundred years.

I am now preaching to the saved. Best I stop.

Finally the best advice I can give is that we all read, study, and think on these things, and then apply ourselves in the way that best fits our background and experiences.

*Editor's note: A version of this article first appeared in the October-November-December 2013 issue of New Mexico's Voice for Native Plants, the newsletter of the New Mexico Native Plant Society. This article has been edited for length and substance with approval from the author. You can reach Jack at [apacheplume29@gmail.com](mailto:apacheplume29@gmail.com)*

## New East Slope Coordinator Named

Lauren Kurtz is the new CoNPS East Slope Workshop Coordinator. Her background is in horticulture and environmental education. She started November 1 and is looking forward to setting up some great workshops. If you have any suggestions for topics or are interested in presenting a workshop please contact Lauren at [lauren.kurtz22@gmail.com](mailto:lauren.kurtz22@gmail.com) or (815) 557-0409.



← (continued from page 9)

Other highlights of the annual meeting include the book sale, silent auction, awards, provided lunch, photo contest and raffle drawing.



# A Day in the Life of a Native Seed Collector

by Denise C. Wilson

A feeling of dread sweeps over me as Pati steps into the jetway. The call came early this morning. With her daughter in a hospital in Chicago, Pati's journey is now to Chicago; she can't stay here in Wyoming. But it's late in October, and the precious seeds we came for have already begun to drop.

It's a five-hour drive from Cheyenne to Buffalo, and I pitch camp in the dark. I had been excited to spend time with my boss, mentor and friend, but now I'll have to do this alone. Dr. Pati Vitt works as Curator of the Dixon National Tallgrass Prairie Seed Bank at Chicago Botanic Garden. We came to Wyoming to collect native plant seeds for the Bureau of Land Management.

After watching a movie in my tent, I am grateful for the extra down sleeping bag. In the morning when I unzip the tent, snow falls inside my collar. *Damn! I can't collect seeds here!* Maybe collect at a lower elevation? I drive along a dry streambed until some goldenrod catches my eye. I climb down an embankment onto a gabion—chain-link fencing with rocks inside used to control erosion. Then a hissing sound stops me cold! It's a rattlesnake! Like a cartoon character, I jump and back-pedal, but then I just run.

Further down the road, I hike in and start digging at some promising roots. A typical collection is between 10,000 and 20,000 seeds, but researchers also need an herbarium voucher—an entire plant, pressed and dried, with roots, stem, leaves, and flowers—for reference. As I dig out the specimen with my trusty Hori-Hori (a steel Japanese gardening tool favored by botanists everywhere) my arms begin itching terribly inside the tightly buttoned shirtsleeves. Red ants! Big ones! *What the hell?!!* I had dug into an ant nest. *This trip is not going to be a bust!*

Hiking on, at last I find a field with a lot of diversity, including several of our target species. But as I hustle to collect seeds, vouchers, DNA, and data, the welts on my arms are swelling by the minute. Two itchy hours later they are big as a half-dollar. I need a strong antihistamine, and fast. I run with bulging bags to the car, speeding to find cell service before the doctor's office closes.

Back in Buffalo, after filling the Prednisone prescription, I tumble into bed in a quaint rented log cabin. *Ahh. This feels like home.* What a hellish day, and I still managed to get three collections.



Denise Wilson is a botanist with her own firm Wilson Associates, Inc., that specializes in ecotypic, native seed collection. Wilson is secretary of CoNPS and is a member of the Boulder chapter.

Some of these seeds will be used for restoration of oil and gas well pads in Wyoming. Some will be used for genetic research. Some will be archived at Chicago Botanic Garden, some in liquid nitrogen at the Center for Agricultural Resources Research Repository in Fort Collins, and even some at the Svalbard Global Seed Vault in Norway, in case of a zombie apocalypse.

This is my eleventh year as a professional seed collector, with 600 collections in archive. My goal is 1,000. I'd like to think that what I do might save the world someday, and that keeps me going when things get rough. But that's doomsday thinking.

And, you can help. You don't have to be a field botanist, freezing your ass off, being bit by bugs and snakes, to conserve native plants. Call or write your representatives in Congress. Tell them to sponsor H.R.1054, the botany bill.

*Editor's note: H.R. 1054 "Botanical Sciences and Native Plant Materials Research, Restoration, and Promotion Act" was introduced in the House in February 2017. In March it was introduced to the Subcommittee on Readiness.*

*This bill directs the Bureau of Land Management, the U.S. Geological Survey, the U.S. Fish and Wildlife Service (USFWS), the National Park Service, and other entities to support a program of intramural and extramural botanical science research to support the land management responsibilities of the Department of the Interior.*

# Boulder Area Garden Tour Delighted Attendees

by Jennifer Bousselot

The 2017 CoNPS Boulder Area Native Plant Garden Tour was on Saturday, July 1. Five Boulder area gardeners generously opened their landscapes up for 81 attendees to tour. This year the Boulder garden tour was hosted in partnership with the Terra Foundation, Audubon Rockies, and the Boulder County Audubon Society. Following are summaries of the five gardens visited.

As a City of Boulder Open Space and Mountain Parks employee, Dave Sutherland brings his love of nature home with him to his large urban lot. The focus of Dave's garden is native plants for wildlife—trees,



Linda Boley's urban oasis

Linda Boley kindly opened her lovely yard for the second year in a row for the CoNPS garden tour attendees. Linda's love of color and skill in design are evident in her front yard rock gardens and backyard shade and vegetable gardens. Her urban oasis is purposeful as well as beautiful; her garden has been designated as a Habitat Hero, Bee Friendly, and Wildlife Habitat. Linda even had plant giveaways!

Connie Holsinger's "wildscape" does exactly what it was designed to do: it brings in the birds and the bees. Designed by her friend, Susan J. Tweit, the garden host's hummingbirds whizzed by, nesting birds were in several locations around

shrubs, perennials, grasses—and he has turned that dream into reality over two decades. Dave provided excellent handouts and free native seed to those who came for the tour.

the garden, and even birds of prey were flying high above! A dry creek bed, wildflower meadow, shrub borders, and a vibrant bed of *Penstemon* species enchanted tour goers. Connie's garden is just the right blend of practical and includes low maintenance, xeric, pollinator-friendly, and beautiful plants.

Jean Morgan has a Colorado cottage garden. She uses native plants en masse to excellent effect with a 'lawn' of Pussytoes (*Antennaria parvifolia*) and a wildflower border. The most memorable parts of her landscape are the clever Colorado-themed touches that make this a back-by-popular-demand garden. Chocolate flower, *Berlandiera lyrata*, is the feature of her 'Death by Chocolate' display.



Jean Morgan uses plants en masse



Connie Holsinger's wildscape

Linda Andes-Georges, and her husband Jean-Pierre, have a rural garden completely dedicated to birds. Food for birds in the form of native flowers, fruit and seed are abundant in their landscape. Bird houses and water sources dot their landscape and no doubt contributed to their Audubon Rockies 2016 Habitat Hero award. After working on their landscape for nearly 15 years, they have succeeded in both blending into the nature that surrounds them and creating a lovely haven for birds and humans alike.

## News and Announcements

### Event Calendar *(Please check CoNPS.org for current information.)*

**Boulder Chapter**, 2<sup>nd</sup> Tuesday of the month, Boulder Rural Firestation, Gunbarrel, 7-8:30pm

November 14 = OSMP Annex (7315 Red Deer Drive, Boulder, CO; **note different location**), Steve Jones, Boulder County Audubon Society and Boulder County Nature Association, "The Sandhills Prairie: conserving habitat for grassland specialists"

December 12 = Renee Galeano-Popp, Northern Chapter President and retired Botanist/Forest Ecologist, "Project Pine Cone"

January 9 = Jessica Smith, CNAP, on Conservation of Rare Plants and Communities

February 13 = Dr. Thomas Andrews, CU, on the natural history of the west side of RMNP and his book, "Coyote Valley"

March 13 = Pat Butler on "Recent travels to Antarctica"

April 10 = Laurie Deiter, OSMP, "Control methods for invasive tall oatgrass, including cattle grazing"

December 12 = Lenore Mitchell, "Wildflowers through the Seasons", Holiday party, 2018 planning session

**Northern Chapter**, 1<sup>st</sup> Tuesday of the month, The Gardens on Spring Creek, Fort Collins, 6:30-social; 7-8:30pm, presentations

November 7 = Dr. Pat Ward, Ecologist, US Fish & Wildlife Service, "A National Strategy for Monitoring Monarch Butterflies and the Health of a Pollinator Community: Can we Get There from Here?"

January 2 = Renee Galeano-Popp, Botanist/Ecologist, Chapter President, "Review of 2017 Chapter Accomplishments, including the Elkhorn Cinquefoil Study"

February 6 = Denise Wilson, Botanist, Wilson & Associates, "Seed Collection for the Dixon National Tallgrass Prairie Seed Bank"

March 7 = Pam Smith, Botanist, CNHP, "Lake County"

**Metro-Denver Chapter**, 2<sup>nd</sup> Tuesday of the month, Denver Botanic Gardens, Plant Society Building, 6:30-8:30pm

November 1 = Carol English, botanist field researcher, "Extreme Rich Fens"

**Southwest Chapter**, Lyceum in the Center for Southwest Studies, Ft. Lewis Campus, 6:30-8pm

November 9 = Al Pfister, "Local Endemic Skyrocket"

January 25 = To be announced

**COLORADO GIVES DAY! December 5, 2017**

### Colorado Native Plant Society Membership Form

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone \_\_\_\_\_ E-mail \_\_\_\_\_  
Chapter (if known) \_\_\_\_\_

**CHAPTERS:** Boulder, Metro-Denver, Northern (Ft. Collins-Greeley), Plateau (Grand Junction & West Slope), Southeast (Colorado Springs-Pueblo), Southwest (Durango) or Unaffiliated

If this a change in address, please write your old address here.

Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

☐ **Check box to receive information on volunteer opportunities**

Most members receive the *Aquilegia* newsletter electronically.

☐ Check the box if you would like to receive the printed copy of *Aquilegia*.

DUES include newsletter *Aquilegia* published quarterly. Membership dues cover a 12-month period.

☐ New ☐ Renewal

☐ Student \$17 ☐ Senior (65+) \$17 ☐ Individual \$25  
☐ Family \$35 ☐ Plant Lover \$50 ☐ Supporting \$100  
☐ Patron \$250 ☐ Benefactor \$500 ☐ Life Member \$800

CONTRIBUTIONS to CoNPS are tax deductible:

**John Marr fund** for research on the biology and natural history of Colorado native plants \$ \_\_\_\_\_

**Myrna P. Steinkamp Memorial fund** for research and other activities to benefit the rare plants of Colorado \$ \_\_\_\_\_

Total included: \$ \_\_\_\_\_

Please make check payable to:  
**Colorado Native Plant Society**

Send completed form and full remittance to:  
CoNPS Office  
PO Box 200  
Fort Collins, CO 80522



## New Member Profile: Jim Pisarowicz

by Mary Menz

Jim Pisarowicz may be a new CoNPS member, but he's not new to native plants. He has been photographing and identifying plants for at least twenty years.

"I'm an early riser. I get out to a site before the sun rises to capture plants in their morning glory and am home by the time it gets hot," said Pisarowicz in a telephone interview. "My wife Karen worked for the National Park Service for years before retiring at the end of 2016. As a psychology professor, I was able to follow her and work for a variety of post-secondary institutions, while also working for NPS during summers."

Jim's photographs are seen regularly on the CoNPS Facebook page and often evoke a number of responses from followers about the exquisite details he captures on camera. Now that he and his wife are both retired, Jim has time to spend on identifying the numerous species he sees in his new hometown of Montrose, as well as those he sees on trips around the Western Slope.



Jim Pisarowicz

"I joined CoNPS because it's a great way to meet other people who are interested in the same things I am," explained Pisarowicz. "The Western Slope Festival was my first event as a member and I loved the field trips."

An avid caver for nearly 60 years, Pisarowicz also has significant experience as editor of the National Speleological Society's magazine *The Journal of Cave and Karst Studies* as well as *Journal of Geographic Information Systems*. He helped develop GIS maps during and after the Yellowstone fires of 1988 while seasonally employed by Wind Cave National Park in South Dakota.

"After all of those years of caving, and four lower extremity surgeries, I had to give up underground exploration," said Pisarowicz. "Now, I explore the flora of Colorado and document it via photography, a hobby I love."

## In Memoriam

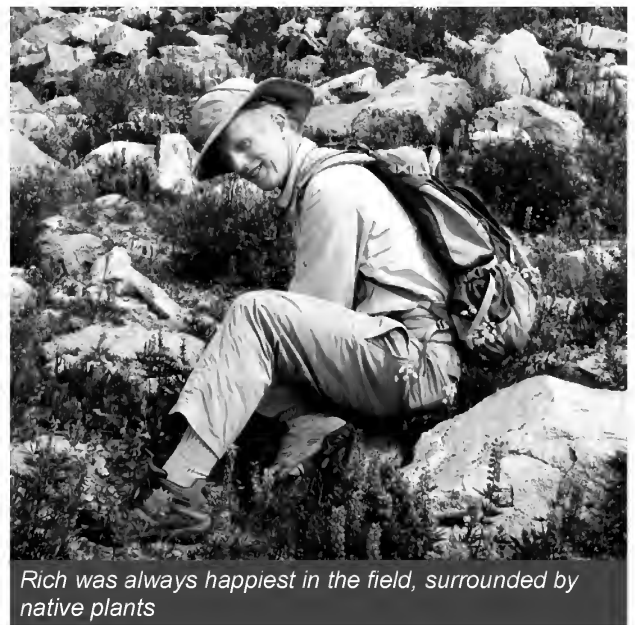
### Rich Scully, a Colorado Native Plant Enthusiast

by M.J. Howell

Rich Scully, a friend of native plants and the Colorado Native Plant Society, passed away in February after a brief illness. Rich's botanical interests in Colorado truly bloomed when we started attending CoNPS meetings and workshops in the 1980s, but he had very early roots in nature.

As a youngster, Rich had an affinity for dirt. He claimed his very first memory was of playing with his older brother in a big pile of soil in Brazil where his father was building a chewing gum factory. A little older, back in Queens, NY, he said the best thing was digging muddy fortifications for toy soldiers in the back yard with brothers, even better than the stickball games in the street.

Still later, at Penn State studying science, his favorite escape from the books was exploring the limestone caves of the area, coming home sodden and covered in mud. By the time I met him, he was at Cornell pursuing a degree in —————>



Rich was always happiest in the field, surrounded by native plants

← (continued from previous page)

geomorphology and soil science, specifically alluvial structures in upstate New York. Summer was spent with the Soil Conservation Service digging test pits and trying to dodge the poison ivy. This would become a theme.

Joining me in California, Rich worked short interesting stints with the SCS and the Forest Service where, although he loved the fieldwork, farmhouse chats, and fascinating geology and geomorphology, he came to understand that the instability of employment in those jobs was not for him—and that the poison oak in California looks different from eastern poison ivy.

---

*“Rich was always happiest outside....”*

---

Moving to Colorado provided more degrees in Geology and Civil Engineering as needed to stay employed during the turbulent job market of the 1980's and he found his niche in groundwater chemical transport where the mathematical challenges were satisfying year-round. It also fit his sporadic health challenges with Lupus, including sun sensitivity.

His passion for the outdoors and dirt was fulfilled by hiking and gardening, which inevitably led to a fascination with native plants and their environments. Drives in the country with him which had always been punctuated with stops to inspect road cuts for buried soils, geological cross sections, and sometimes fossils now morphed into forays for rare and interesting plants.

At a CoNPS meeting, Rich heard about the Colorado Natural Heritage Program's Adopt-A-Rare-Plant Program and our years of plant sleuthing began, first with *Aletes humilus*, followed by *Potentilla rupincola*. Then, wanting to share the spectacular, diverse habitats where they live, he led field trips for CoNPS to favorite locales for these plants.

Rare plant monographs learned and digested, he then wanted to study their families in depth too. The CoNPS workshops were very helpful for this, and eventually he felt he could share his additional self-taught knowledge with others. As he had access to photomicrography equipment, why not share those visuals that are needed to navigate the botanical keys? And so his distinctive workshop style evolved.

Rich's first workshop was on *Potentillas* of Colorado in 2007, followed by Mints (2008), *Solanaceae* (2010), Mallows (2010), Pinks (2011), herbaceous *Rosaceae* (2012), Buckwheat (2014), and lastly the Parsleys

(2015). He had started working on *Senecio* and kin in 2016.

He incorporated his observations in developing a key to the Colorado *Potentillas* as a class handout and also contributed to that section of the fourth edition of *Colorado Flora, Eastern Slope*, Weber and Wittmann, 2012.

In pursuit of particular plants, Rich loved the challenge of developing search images based on his knowledge of soils, geomorphology, and geology. We found rare plants and wrote many Elemental Occurrence Records, most memorably—

- the two plants we adopted including a monitoring plot for *Aletes humilus* near Allenspark;
- *Penstemon laricifolius* ssp. *exilifolius*,
- *Eriogonum exilifolium*;
- *Phacelia formosula*, which led to Rich co-leading a field trip in the upper Laramie Valley;
- *Astragalus sparsiflorus* near Deckers; and
- *Astragalus osterhoutii* along the Colorado River near Kremmling.

In recent years, Rich was a Native Plant Master® instructor for 2 years. He made plant surveys of *Aristida basiramea* (Forked Threeawn) on Boulder County and Jefferson County open spaces, the last of which he submitted as a detailed report. He also reported on *Asplenium adiantum-nigrum* monitoring for City of Boulder Open Space. And not least, he enjoyed the camaraderie of assisting others with plant surveys in Boulder, Jefferson, and Larimer Counties.



When we moved to the foothills near Lyons, he first identified all the plants on the property, then used his knowledge to choose what to protect from deer and packrats, what to battle (he discovered we were proud owners of one half acre of poison ivy), and what other natives to reintroduce. Rich was always happiest outside working in the yard or afield with native plants. And in the field, he most enjoyed the company of other plant enthusiasts whether learning from them or teaching or sharing a discovery.

*Editor's note: Mary Jane Howell is Rich's wife and was his enthusiastic field companion for 38 years.*



## Second Place Winners (continued from previous page)

### Colorado Native Plants

Tom Lebsack

*Streptopus amplexifolius*

### Colorado Native Plant Landscape (tie)

Don Hazlett

*Blue Grama*

Tom Lebsack

*Rhodiola integrifolia*



## Time to apply for a CoNPS Research Grant

The CoNPS board of directors is soliciting proposals for a February 15 deadline.

The Marr Fund supports research on the biology of Colorado native plants and plant communities. The Steinkamp Fund supports research on the biology of Colorado rare native plants.

To Apply, visit <https://conps.org/volunteer-for-committees/research-grants/>

For additional information, please contact Stephen Stern at [stern.r.stephen@gmail.com](mailto:stern.r.stephen@gmail.com).

Recipients of the awards summarize their studies for publication in the Society's newsletter, *Aquilegia*, and on the web site.



## Colorado Native Plant Society

P.O. Box 200

Fort Collins, Colorado 80522

<http://www.conps.org>



Time to order your  
2018 CoNPS Calendar!  
Contact Linda Smith  
[CoNPSOffice@aol.com](mailto:CoNPSOffice@aol.com)

